

CLAIMS

Now, therefore, the following is claimed:

1. A texture mapping system, comprising:

memory for storing a parametric texture map, the parametric texture map having a plurality of texels, each of the texels defining a variable expression that defines a luminosity parameter as a function of light direction; and

a texture map manager configured to perform a rotation of a texture defined by the parametric texture map, the texture map manager further configured to adjust the variable expression of at least one of the texels to compensate for the rotation.

2. The system of claim 1, wherein the variable expression of the one texel defines a luminosity behavior for the one texel.

3. The system of claim 1, wherein the variable expression of the one texel is defined according to the following equation:

$$F(u,v) = Au^2 + Bv^2 + Cuv + Du + Ev + F,$$

wherein A, B, C, D, E, and F are constants, and wherein u and v are components of a light vector.

4. The system of claim 3, wherein the texture map manager is configured to adjust the variable expression of the one texel, in response to the rotation, such that the variable expression of the one texel is defined according to the following equation:

$$F(u,v) = (AK^2 + BL^2 + CKL)u^2 + (AM^2 + BN^2 + CMN)v^2 + (2AKM + 2BLN + CKN + CML)uv + (DK + EL)u + (DM + EN)v + F,$$

wherein $K = \cos(x)$, $L = \sin(-x)$, $M = -\sin(x)$, $N = \cos(-x)$, and x is indicative of an angle that the parametric texture map is rotated via the rotation.

5. A computer-readable medium having a program, the program comprising:

logic for rotating a texture defined by a parametric texture map, the parametric texture map having a plurality of texels, each of the texels defining a variable expression that defines a luminosity parameter as a function of light direction; and

logic for compensating the variable expression of at least one of the texels for a rotation of the texture by the rotating logic, wherein the compensating logic adjusts the variable expression based on an angle of rotation for the texture.

6. A texture mapping system, comprising:

means for rotating a texture defined by a parametric texture map, the parametric texture map having a plurality of texels, each of the texels defining a variable expression that defines a luminosity parameter as a function of light direction; and

means for compensating the variable expression of at least one of the texels for a rotation of the texture by the rotating means, wherein the compensating means adjusts the variable expression based on an angle of rotation for the texture.

7. A texture mapping method, comprising:

rotating a texture defined by a parametric texture map, the parametric texture map having a plurality of texels, each of the texels defining a variable expression that defines a luminosity parameter as a function of light direction; and

adjusting the variable expression of at least one of the texels thereby compensating for the rotating.

8. The method of claim 7, further comprising indicating, via the variable expression of the one texel, a luminosity behavior for the one texel.

9. The method of claim 7, wherein the variable expression of the one texel is defined according to the following equation:

$$F(u,v) = Au^2 + Bv^2 + Cuv + Du + Ev + F,$$

wherein A, B, C, D, E, and F are constants, and wherein u and v are components of a light vector.

10. The method of claim 9, wherein the adjusted variable expression of the one texel is defined according to the following equation:

$$F(u,v) = (AK^2 + BL^2 + CKL)u^2 + (AM^2 + BN^2 + CMN)v^2 + (2AKM + 2BLN + CKN + CML)uv + (DK + EL)u + (DM + EN)v + F,$$

wherein $K = \cos(x)$, $L = \sin(-x)$, $M = -\sin(x)$, $N = \cos(-x)$, and x is indicative of an angle that the texture is rotated via the rotating.

11. A texture mapping method, comprising:

rotating a texture defined by a parametric texture map, the parametric texture map having a plurality of texels, each of the texels defining a variable expression that defines a luminosity parameter as a function of light direction; and

compensating the variable expression of at least one of the texels for the rotating, wherein the compensating comprises adjusting the variable expression of at least one of the texels based on an angle of rotation of the texture.

12. The method of claim 11, further comprising indicating, via the variable expression of the one texel, a luminosity behavior for the one texel.

13. The method of claim 11, wherein the variable expression of the one texel is defined according to the following equation:

$$F(u,v) = Au^2 + Bv^2 + Cuv + Du + Ev + F,$$

wherein A, B, C, D, E, and F are constants, and wherein u and v are components of a light vector.

14. The method of claim 13, wherein the adjusted variable expression of the one texel is defined according to the following equation:

$$F(u,v) = (AK^2 + BL^2 + CKL)u^2 + (AM^2 + BN^2 + CMN)v^2 + (2AKM + 2BLN + CKN + CML)uv + (DK + EL)u + (DM + EN)v + F,$$

wherein $K = \cos(x)$, $L = \sin(-x)$, $M = -\sin(x)$, $N = \cos(-x)$, and x is indicative of an angle that the texture is rotated via the rotating.